Remarks

Claims 1-8 are pending.

Claims 1-8 stand rejected under 35 USC 102(e) as being anticipated by Dickmann (US Pub. No. 2004/0230932).

Claims 1 and 5 are amended. Claims 9-16 are canceled. Claims 17-28 are new. No new subject matter is added. Claims 1-8 and 17-28 are now pending in the application. Reconsideration and allowance of the pending claims is requested in light of the above amendments and the following remarks.

Prior Art Made of Record

The applicants would like to thank Examiner Parihar for identifying these potentially relevant prior art references. After reviewing the references cited, the applicant believes that the present invention is patentably distinguishable over the cited references.

Election Following Restriction Requirement

The election without traverse of claims 1-8 is hereby affirmed. Claims 9-16 have been cancelled without prejudice as being drawn to a non-elected invention.

Claim Rejections under 35 U.S.C. 102(e)

Dickmann teaches a system and method for controlling memory chips on a module where individual chips or sets of chips can be accessed for data operations in order to, among other things, prevent overheating of the chips. *See* Dickmann paragraph [0014]. Dickmann does not teach interchanging connections (or more specifically, signals associated with connections) within columns of connections on its semiconductor die. The data interchange described by Dickmann at, for example, paragraph [0014], refers to the exchange of data between the chips

and the system bus, not interchanging signals corresponding to columns of connections on a chip (or module).

In contrast, the present application is directed to interchanging signals corresponding to connections within columns of connections on memory modules.

Claims 1 and 5 have been amended to clarify that interchanging connections refers to changing the electrical signals corresponding to connections on the memory modules, not exchanging data with a system bus as taught in Dickmann. Since Dickmann does not teach interchanging the electrical signals corresponding to connections on the memory modules, claims 1 and 5, and their dependent claims, 2-4 and 6-8, are allowable over Dickmann and allowance is requested.

Further regarding claim 5, the Examiner has proposed several equivalencies between the elements of claim 5 and Dickmann that are not supported by the teachings of Dickmann. For example, the Examiner proposes that Dickmann teaches a first memory module mounted on one side of a substrate because Dickmann says that memory modules M1-M4 plug into a motherboard. The Examiner goes on to propose that Dickmann teaches a second memory module mounted on a second side of the substrate because it teaches that memory modules M1-M4 have chips mounted on both sides. Nowhere in the disclosure of Dickmann does it teach that any of memory modules M1-M4 is mounted on the opposite side of the motherboard from the others and Dickmann does not teach that the chips on the modules M1-M4 contain columns of connections. Consequently, this equivalence is not supported by the disclosure of Dickmann.

The Examiner also proposes that Dickmann anticipates "a memory controller to control interchange of signals between first and second outer columns of the memory modules" because it teaches a memory controller that controls the interchange of data between the processor and

the memory in a computer. Interchanging data between the processor and the memory of a computer is not equivalent to interchanging signals between first and second outer columns of the memory modules, as recited in the claim.

Finally, the Examiner proposes that signal traces in the substrate having uniform routing lengths are anticipated by Dickmann FIG. 3 because the figure appears to show equal lengths of the connections between memory modules M1-M4. However, Dickmann specifically teaches that controller C selects certain chips among the chips on memory modules M1-M4 to receive data, such that some data will be interchanged with chips on one memory module and other data will be interchanged with chips on another memory module. *See* Dickmann paragraph [0045]. As can be seen from the shaded (selected) chips in FIG. 3, the signal paths for data from the controller to the chips have different lengths depending on which module the selected chip is mounted on. Consequently, this equivalence is not supported by Dickmann.

For at least the reasons detailed above, claim 5 and its dependent claims, 6-8 are allowable over Dickmann and allowance is requested.

<h3 align="center">New Claims</h3>

New claims 17-28 are fully supported by the application as filed at, e.g., original claims 1-8 and page 5, line 1 to page 7, line 11. The new claims are allowable over Dickmann at least because Dickmann does not teach interchanging signals corresponding to columns of connections on a memory module, as described above.
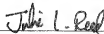
Conclusion

No new matter has been added by this amendment. Allowance of all pending claims is requested. The Examiner is encouraged to telephone the undersigned at (503) 222-3613 if it appears that an interview would be helpful in advancing the case.

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Respectfully submitted,

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